Augmenting Novel C60 Production Method to Produce Ferromagnetic C60 i.e. C60 with Single Iron Atom Trapped Inside for Frictionless Armor and Earth-Penetrating Warheads Capable of Reaching Unprecedented Depths

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Introduction

Building upon my recent publication concerning an efficient synthesis method for C60 via immersion of colloidal carbon atoms in a variably electrified aqueous solution, a new formulation of C60, I propose, can be used to support enhancement of armor and earth-penetrating warheads to reach 2-3x deeper than currently possible using conventional warheads; deep enough to destroy any known bunker using non-nuclear means.

Abstract

Two primary factors limit the depth to which earth-penetrating warheads may travel: The extent to which friction-induced heating leads to disintegration (especially true for armor-penetrating applications) and the extent to which friction slows the warhead until it eventually comes to a complete stop; embedded somewhere within the Earth. In theory, if this friction could be sufficiently mitigated, earth-penetators could reach far greater depths than thus far demonstrated.

The addition of an Fe atom trapped within each of millions of carbon fullerenes would enable large quantities of FeC60 to be adhered magnetically to the entire surface of a penetrating warhead. In the moment before impact, an electromagnet is activated that massively increases the force with which the FeC60 clings to the surface so that it may resist ablation by friction with the material it is penetrating.

If the FeC60 were simply embedded in the surface of a metal (a tempting approach) physics suggests that this design would lead to the collapse of the dome-shaped structures and the formation of dimples within those structures. This would negate much of the friction-reducing benefit of the coating.

By electromagnetically adhering the spheres to the surface of such a warhead during the penetration phase, the spheres would have two-dimensional freedom of movement and would resist dimpling. This is likely the only viable method for maintaining both the integrity of the shape of the fullerenes and preventing their ablation.

Construction of a prototype would depend only upon being able to add an electromagnet to the unit and the ability to synthesize sufficient quantities of the FeC60.

The counter-intuitive reason why this approach (which strictly speaking actually increases surface area) would provide reduction of effective friction resides in the tendency of the individual fullerenes within the lubricating layer

to provide a means of kinetic actuation of magnetic force against the particulate matter one wishes to push out of the way.

When a building is demolished, explosives must be used to blow material out of the path of the falling portions of the building. Only by doing this can a building be made to implode since any friction between elements of the structure would result in an asymmetrical and likely incomplete collapse.

In this case, one can think of the fullerenes as windshield wipers and the particles one wishes to nudge out of the way as raindrops. The intense power of the electromagnet and the leeway of the fullerenes to roll over the warhead surface allows for pushback against materials blocking the path of the warhead and for those materials to be deflected only nanometers from impact with the conventional steel shielding of the penetrator. This approach enables us to achieve not true frictionlessness, which is impossible, but rather the continual pre-excavation of extremely small thicknesses of earth by the translation of magnetic force into kinetic energy. This approach, rather than reducing true friction, reduces effective friction by knocking obstacles out of the way using a modality that spares the structural integrity of the primary warhead shielding, which would still be composed of traditional materials such as steel.

Conclusion

This design may also have application for protecting spacecraft from damage stemming from high-speed collisions with particles that makes PSL (percentage of speed of light) space flight so dangerous. Photo-Magnetic propulsion may be able to get us to Mars in only 10 days, but we need to get there in one piece.